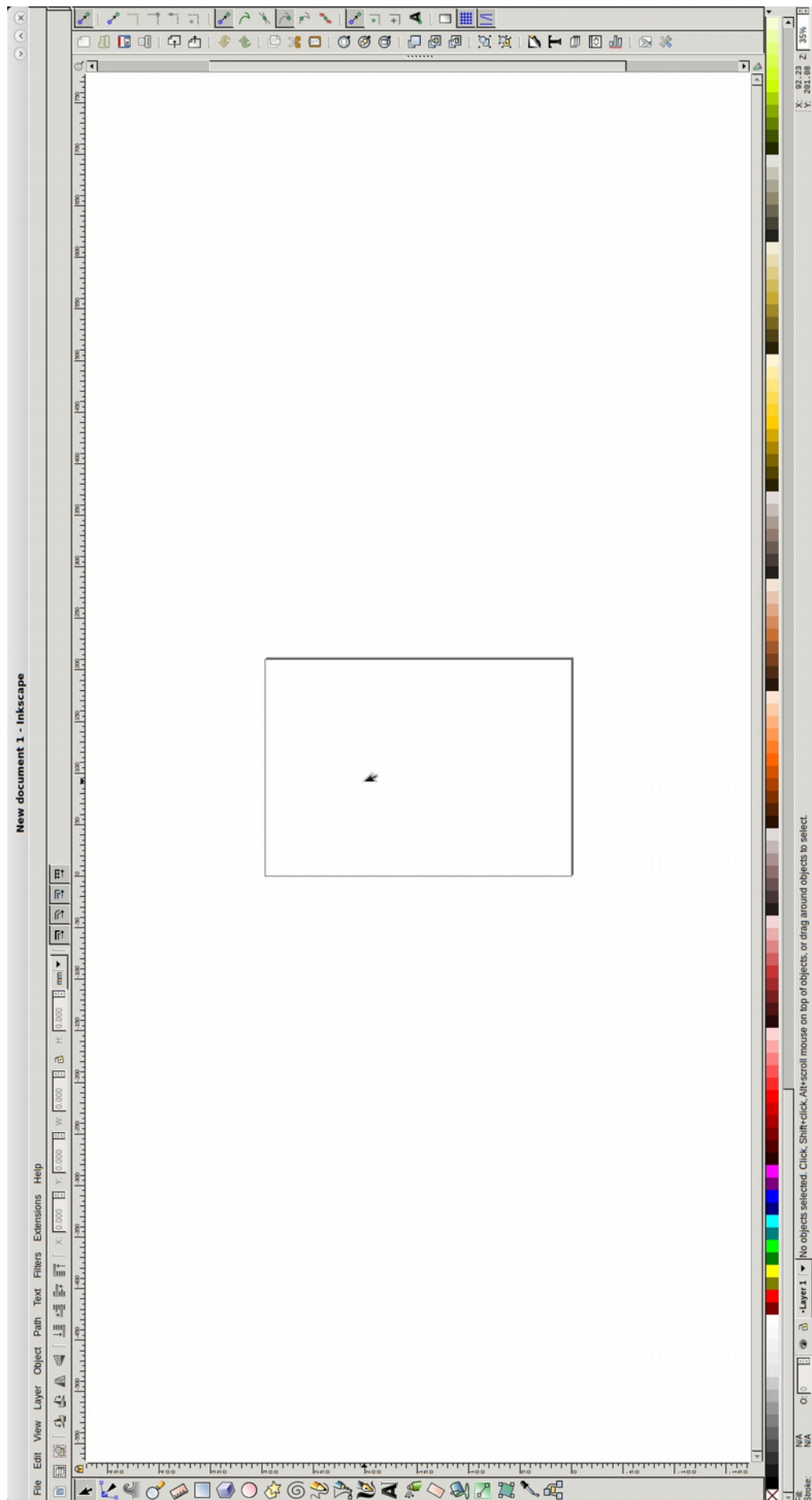# Using Inkscape Vector Graphics Software

for the production of Accessible Images

(includes guided tour of the menu/s and toolbars, tools and associated toolboxes

An introduction to the main Window:

The default layout and orientation of the Canvas is Portrait, with size A4. To change the orientation and size of the canvas we need to use the keyboard shortcut of 'Shift+ Ctrl+ D':
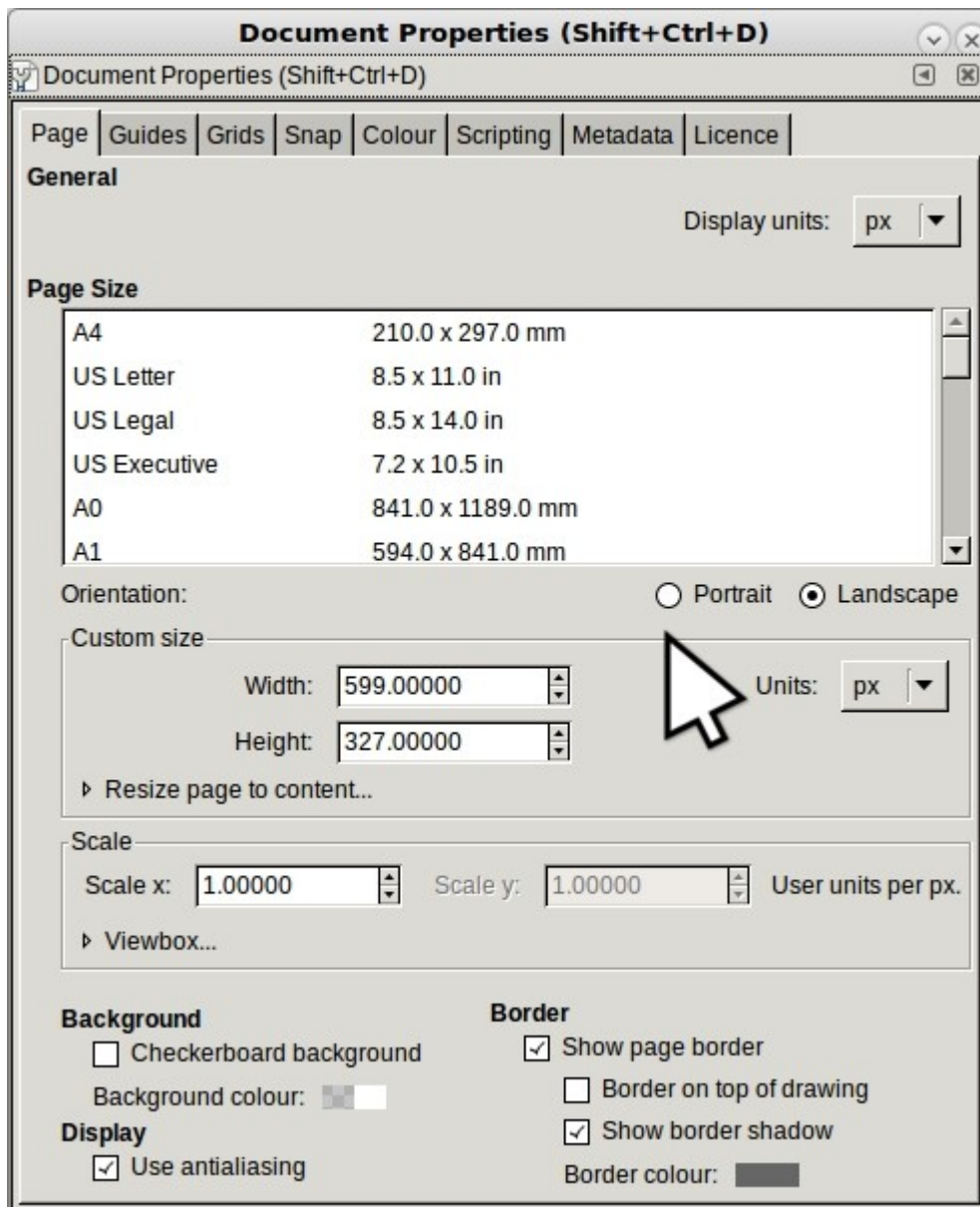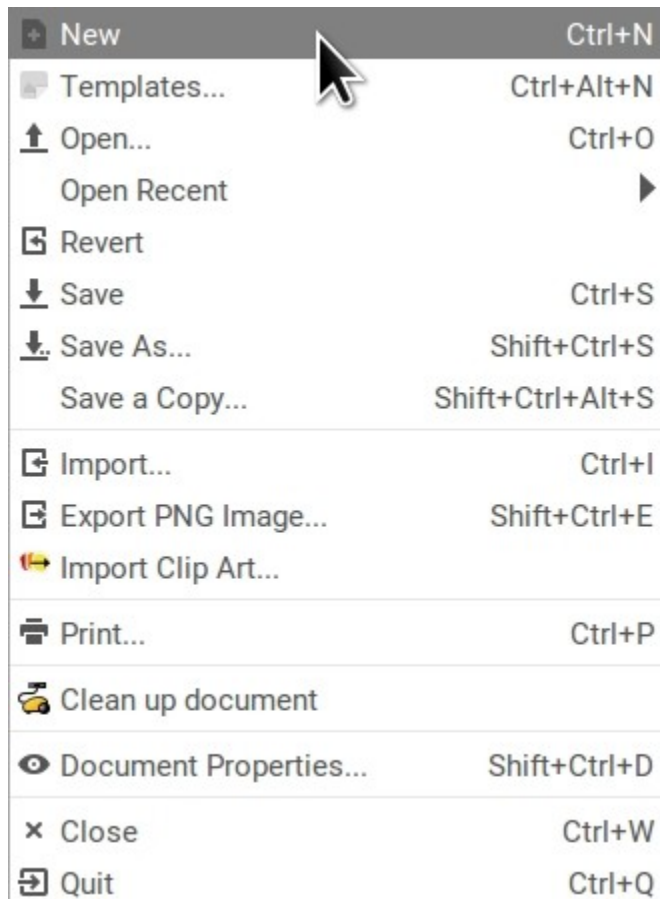
At the top we have the 'Menu Bar'. The main items we shall be using from the Menu Bar are:

File:

New document 1 - Inkscape

File   Edit   View   Layer   Object   Path   Text   Filters   Extensions   Help

(New, Open Recent, Save As, Save, Export PNG image …, Print, Close)

|	
New	Ctrl+N
Templates...	Ctrl+Alt+N
Open...	Ctrl+O
Open Recent	▶
Revert	
Save	Ctrl+S
Save As...	Shift+Ctrl+S
Save a Copy...	Shift+Ctrl+Alt+S
Import...	Ctrl+I
Export PNG Image...	Shift+Ctrl+E
Import Clip Art...	
Print...	Ctrl+P
Clean up document	
Document Properties...	Shift+Ctrl+D
Close	Ctrl+W
Quit	Ctrl+Q

When you select 'New' a new instance of the Inkscape interface starts, leaving any other canvases you have been working on open in the background, so don't think you have lost your work if you accidentally catch New instead of another option. To test this yourself, place an image or do a simple drawing on screen, click on 'New' from the 'File' menu and a new instance is opened – click on the 'minimise button' of the Windows Controls of the 'New' canvas and you will see your first Inkscape image in all its glory.

Never select 'Open' as it will default to the program's storage location for images, instead always use 'Open recent' - if you have been working on a specific project, for example a map in T:\VI\Geography it will open images you have created in that particular folder – it saves a lot of time having to search for something you have been working on and does not rely on you searching for a specific file. A word of caution: for some reason the Server at Tapton fails to make the file association of *.svg (scale vector graphic) with Inkscape and instead chooses 'Internet Explorer' - whilst it might be useful to view .svg files in a browser it has to be noted that if you were tempted to print off the graphic, the font sizes would be incorrect (too small) for a pupil's profile in respect of font size, so only print off *.svg files in Inkscape.

When you have finished editing your image/graph etc in Inkscape, sometimes when you have 'Selected All' to copy and paste into a Word document, not all of the graphic may transfer across – this usually occurs when the 'Fill' command has been used – this is when you utilise the 'Export as PNG ...' command from the file menu. This way a new image is formed with the file extension *.png (portable network graphic) so you can then use the 'Insert | Image' command in Word.

Edit:
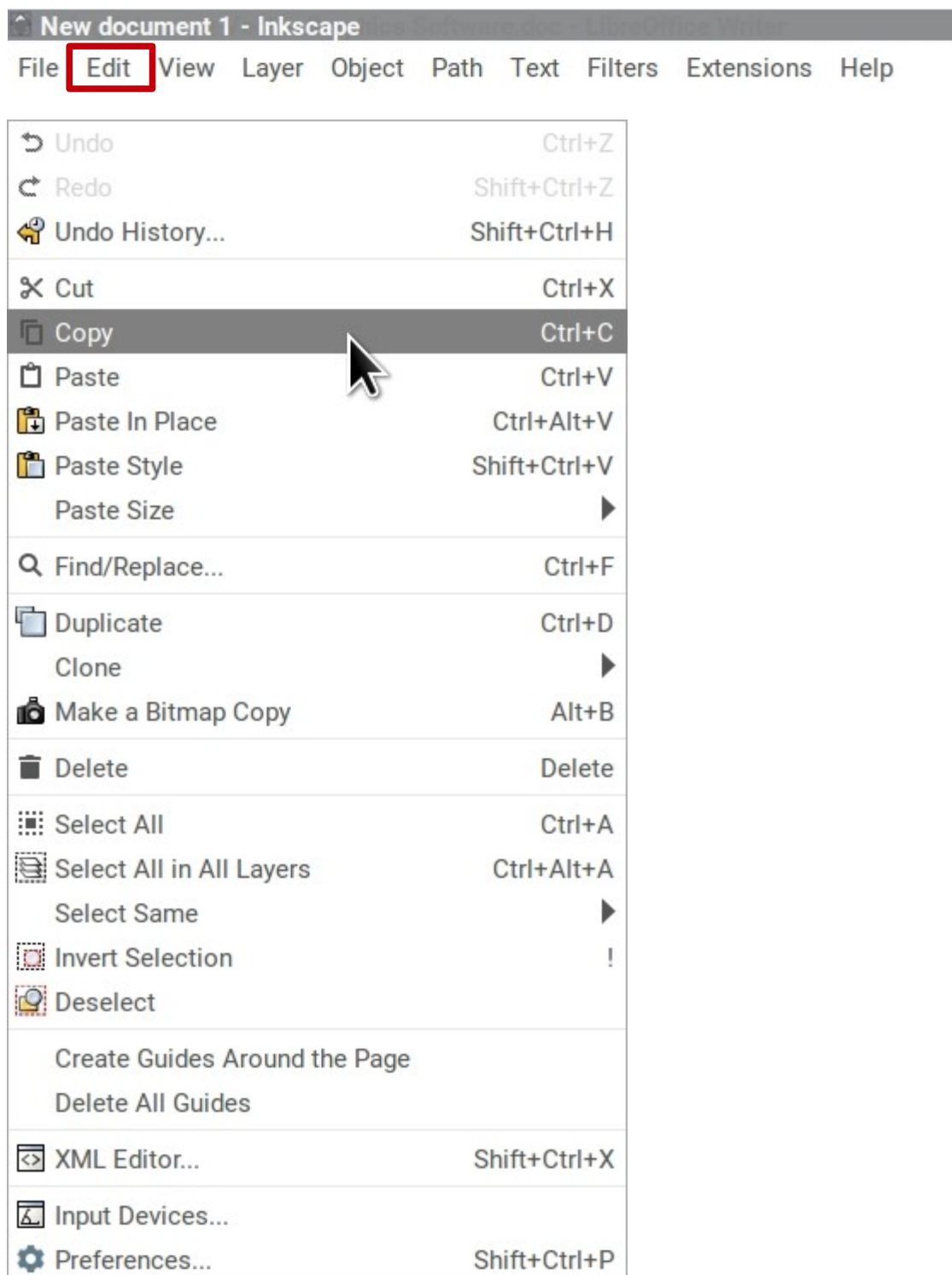
The main options from the 'Edit' menu will be Copy, Paste, Duplicate, Clone, Make a Bitmap Copy, Delete, Select All, Preferences.

Ignoring the obvious ones of Copy and Paste, Duplicate is useful for making an exact copy of a box (or any other shape) the same size as what you have already drawn:
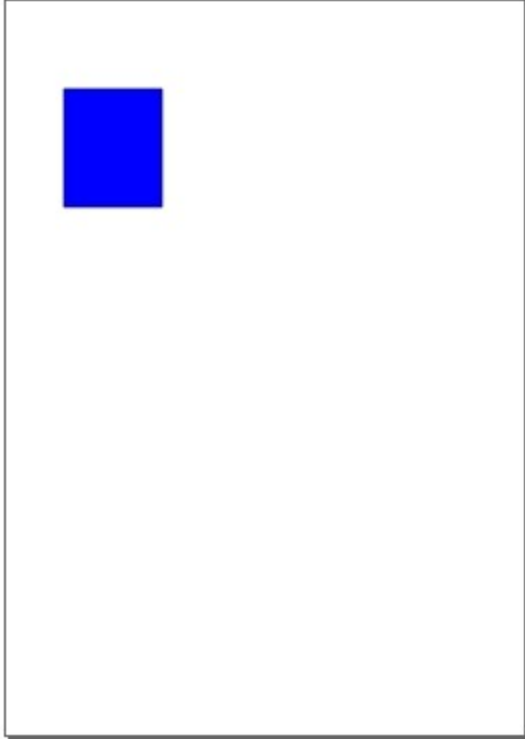
– this creates an exact copy and overlays the original image so you will need to choose the selection tool (arrow head at the top of the left tool bar) select the image by left-clicking (this will then disclose the resize handles) then hold down the left mouse key and drag the duplicate item to a new position.
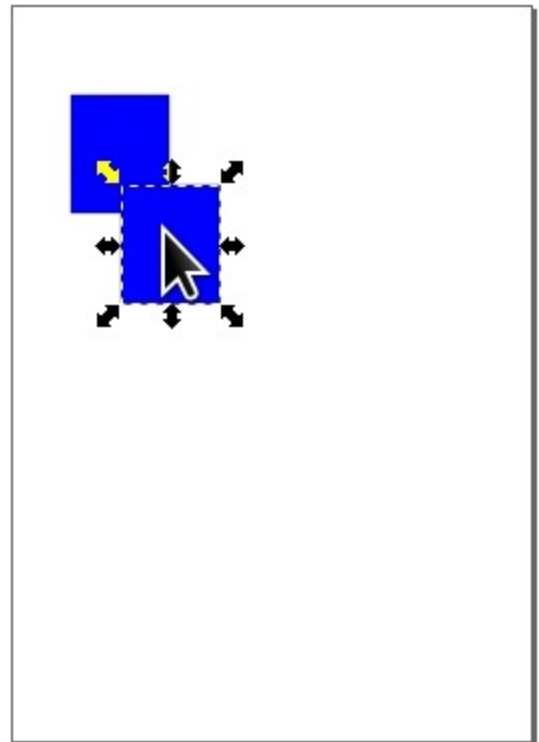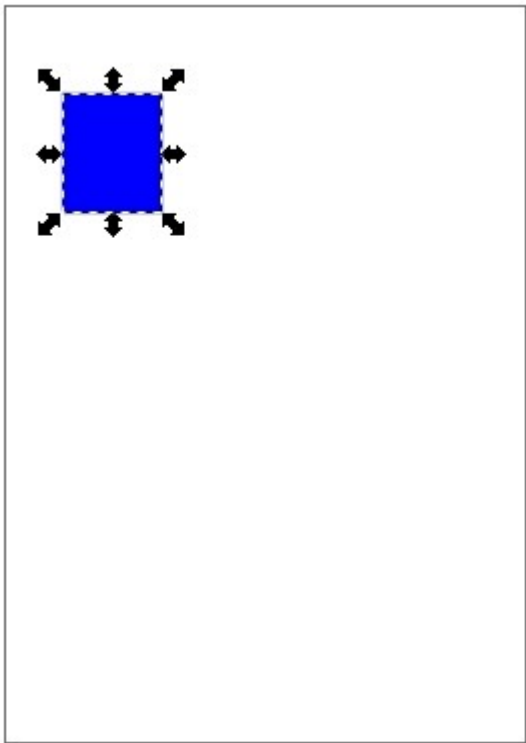
The Clone option at its very basic level will do exactly the same as 'Duplicate' but it has further options. So you want to make the clone twice as wide and twice as tall – you can do this by selecting the 'Create Tiled Clones' option:
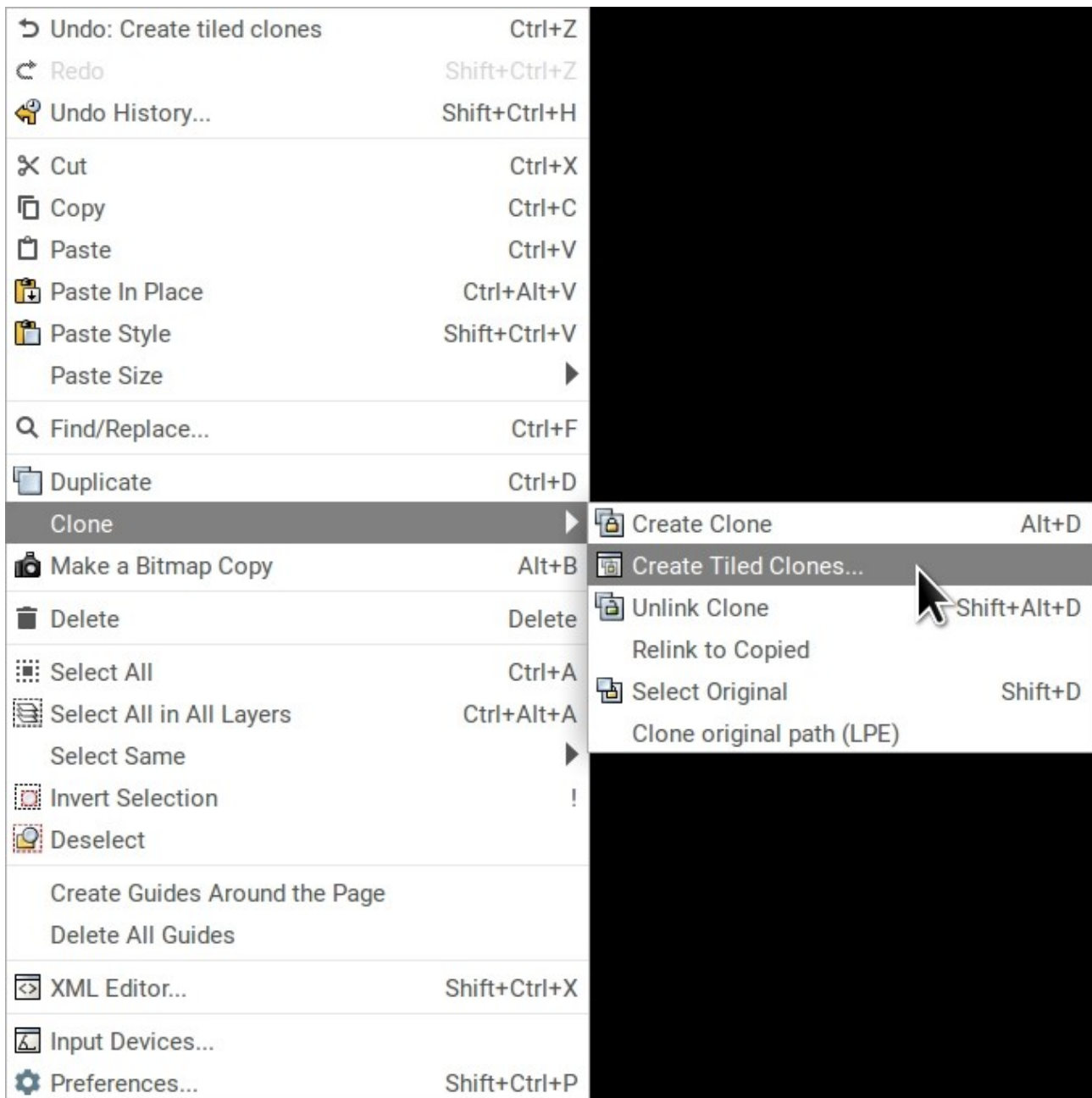
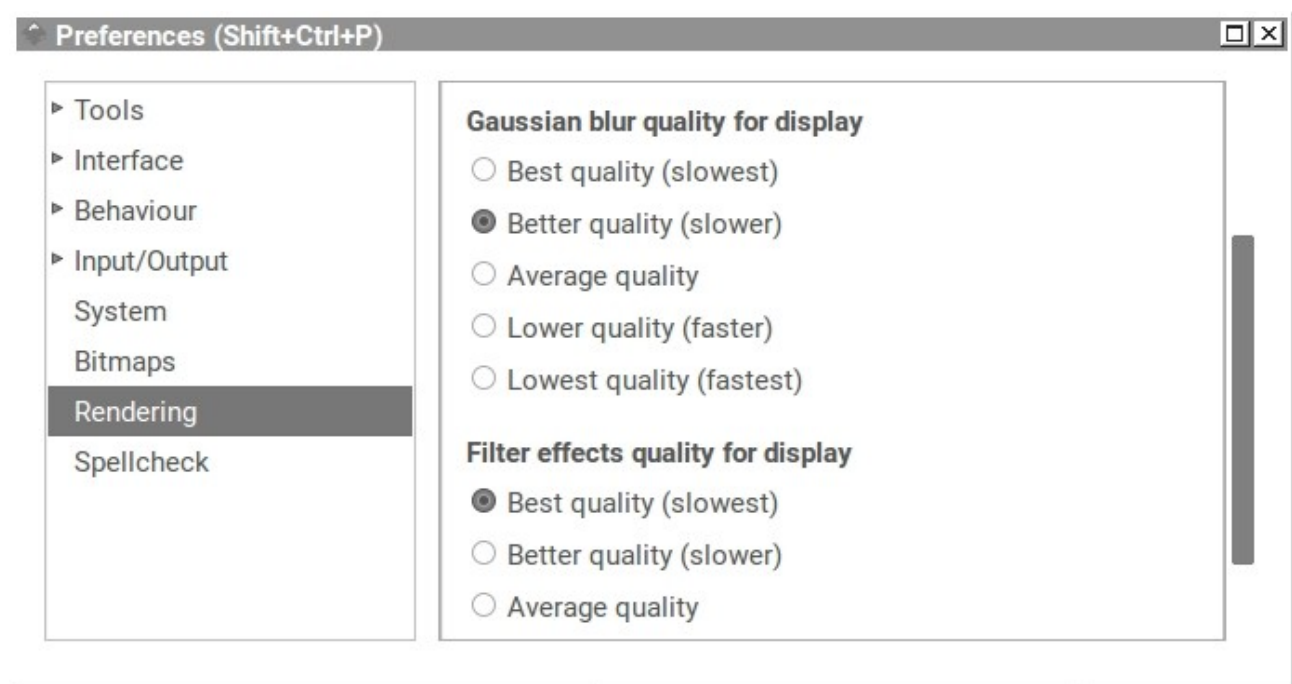**Created Tiled Clones and associated Tool Box / options (tabs)**
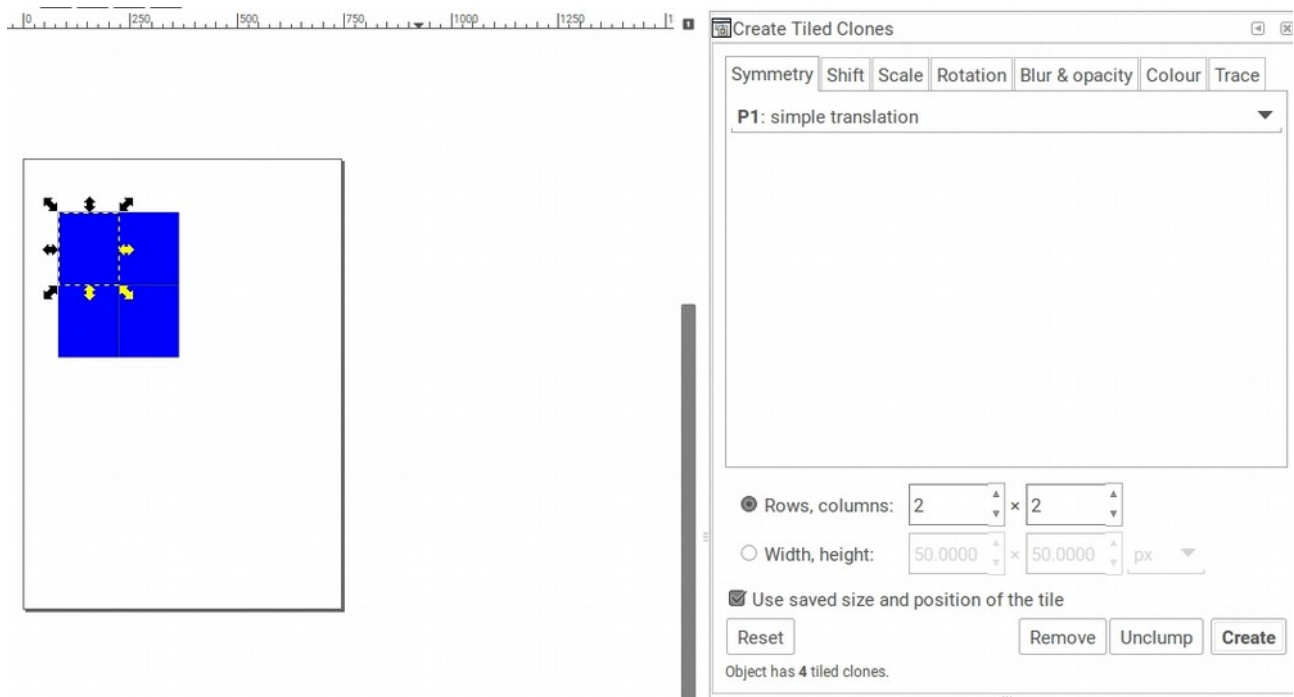
'Make a Bitmap Copy' is also like 'Duplicate' and 'Clone' - the difference here is that once created, again you have to drag it to a new location if you want to separate it, as in 'Duplicate' but you can now 'extract' that image as an image in itself so you can use it as a 'building block' for new images by saving it to your Pictures folder.

Preferences: for our purposes we will be concentrating on 'Bitmaps | Import', 'Rendering', and 'Spell check'.
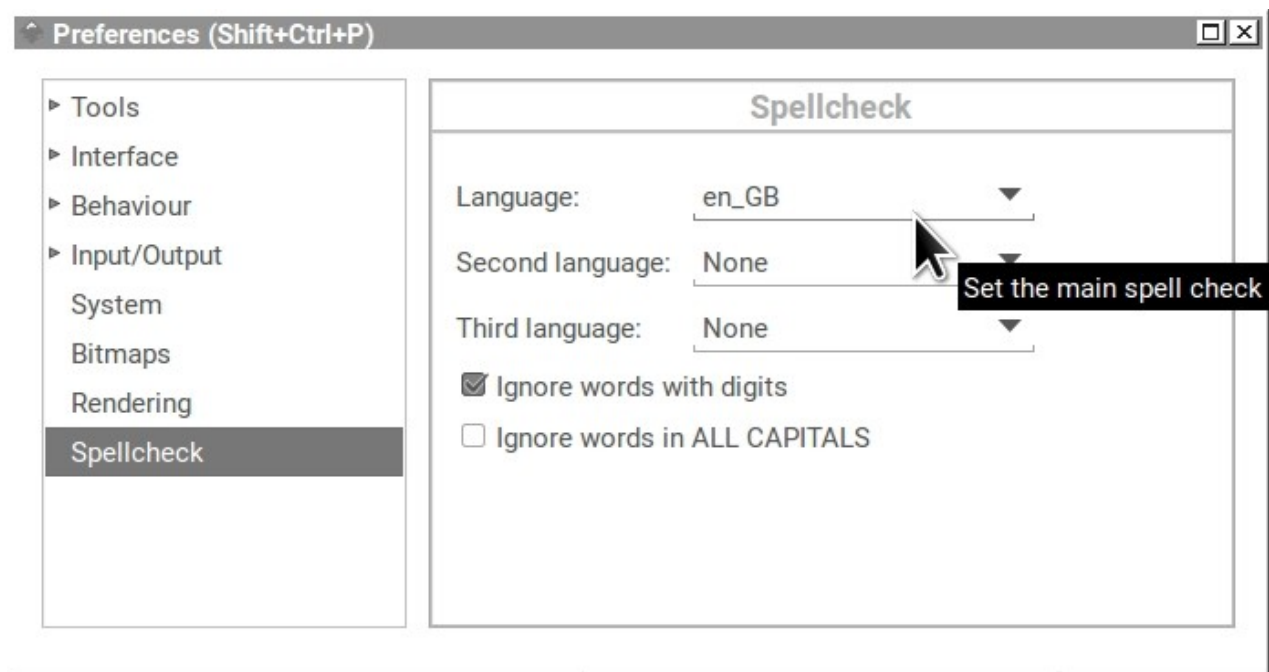
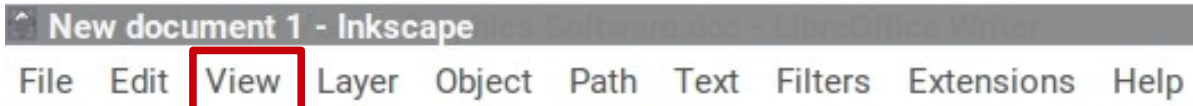**'Bitmaps | Import' should be set to Smooth (optimize quality).**
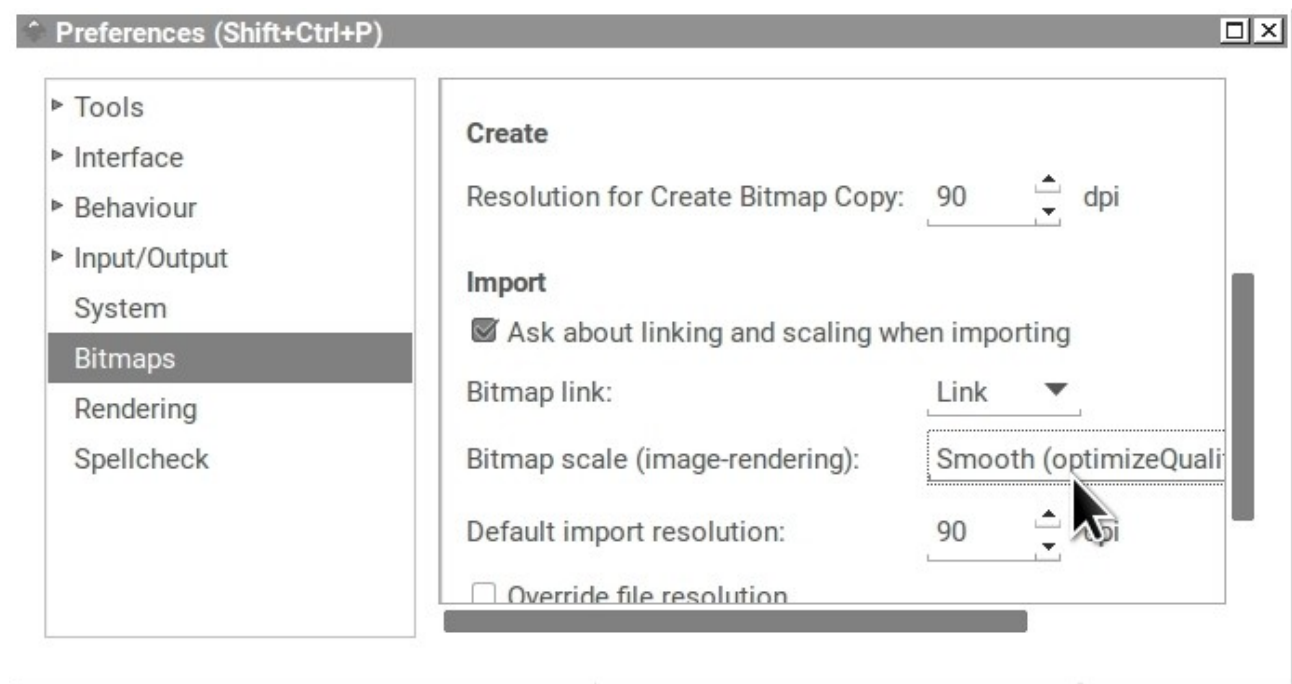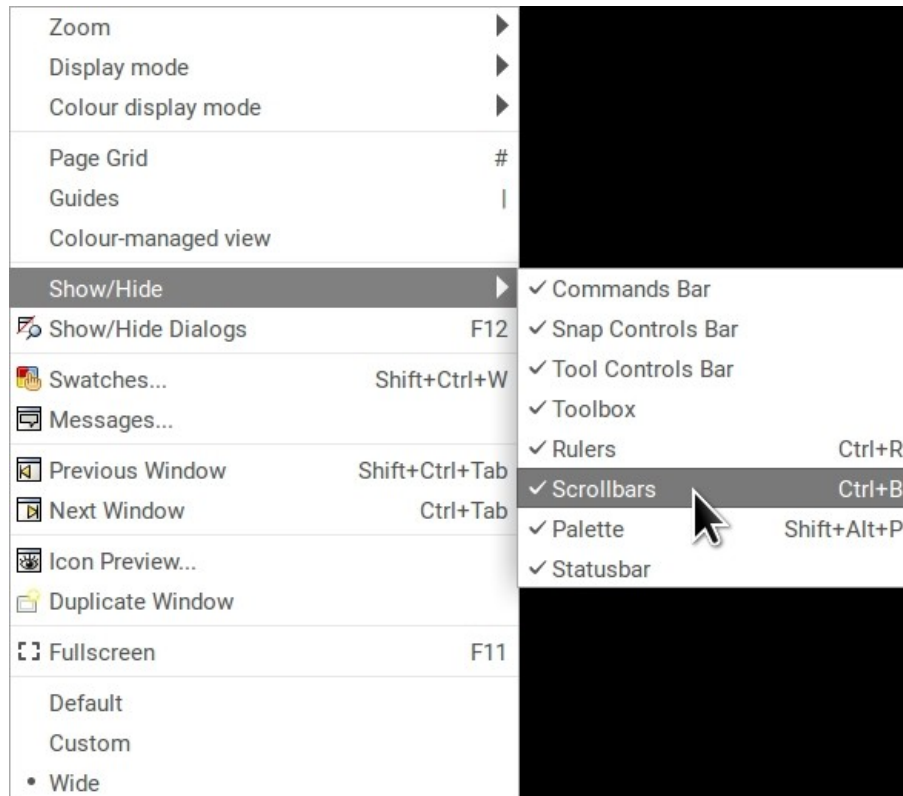

'Rendering' should also be set to quality:

'Spell check' may need changing from 'en-US' to 'en-GB':

View:

New document 1 - Inkscape

File   Edit   View   Layer   Object   Path   Text   Filters   Extensions   Help

The main item to concentrate on is to ensure that 'scrollbars' are visible as sometimes they are not 'active' by default:

Zoom	▶	
Display mode	▶	
Colour display mode	▶	
Page Grid	#	
Guides	|	
Colour-managed view		
Show/Hide	▶	✓ Commands Bar
Show/Hide Dialogs	F12	✓ Snap Controls Bar
Swatches...	Shift+Ctrl+W	✓ Tool Controls Bar
Messages...		✓ Toolbox
Previous Window	Shift+Ctrl+Tab	✓ Rulers Ctrl+R
Next Window	Ctrl+Tab	✓ Scrollbars Ctrl+B
Icon Preview...		✓ Palette Shift+Alt+P
Duplicate Window		✓ Statusbar
Fullscreen	F11	
Default		
Custom		
• Wide		

Scrollbars are the vertical and horizontal bars that appear on the inside of the right toolbar (vertical) and inside the palette bar at the bottom (horizontal) – the bottommost scrollbar of the screen is the palette scroll bar to view all the different shades of the colours that are available.
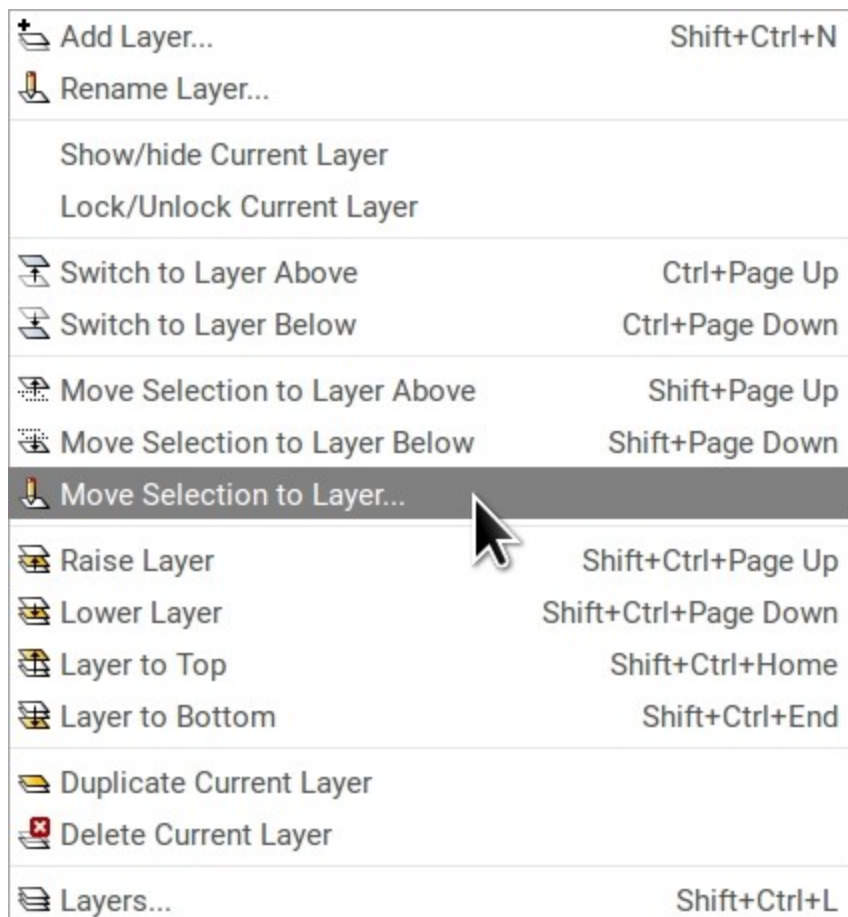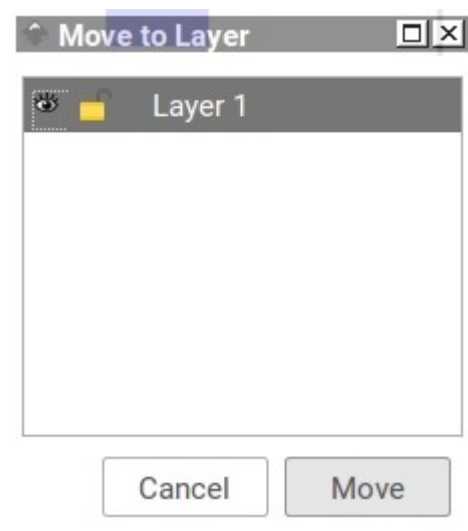
Layer:

New document 1 - Inkscape

File   Edit   View   Layer   Object   Path   Text   Filters   Extensions   Help
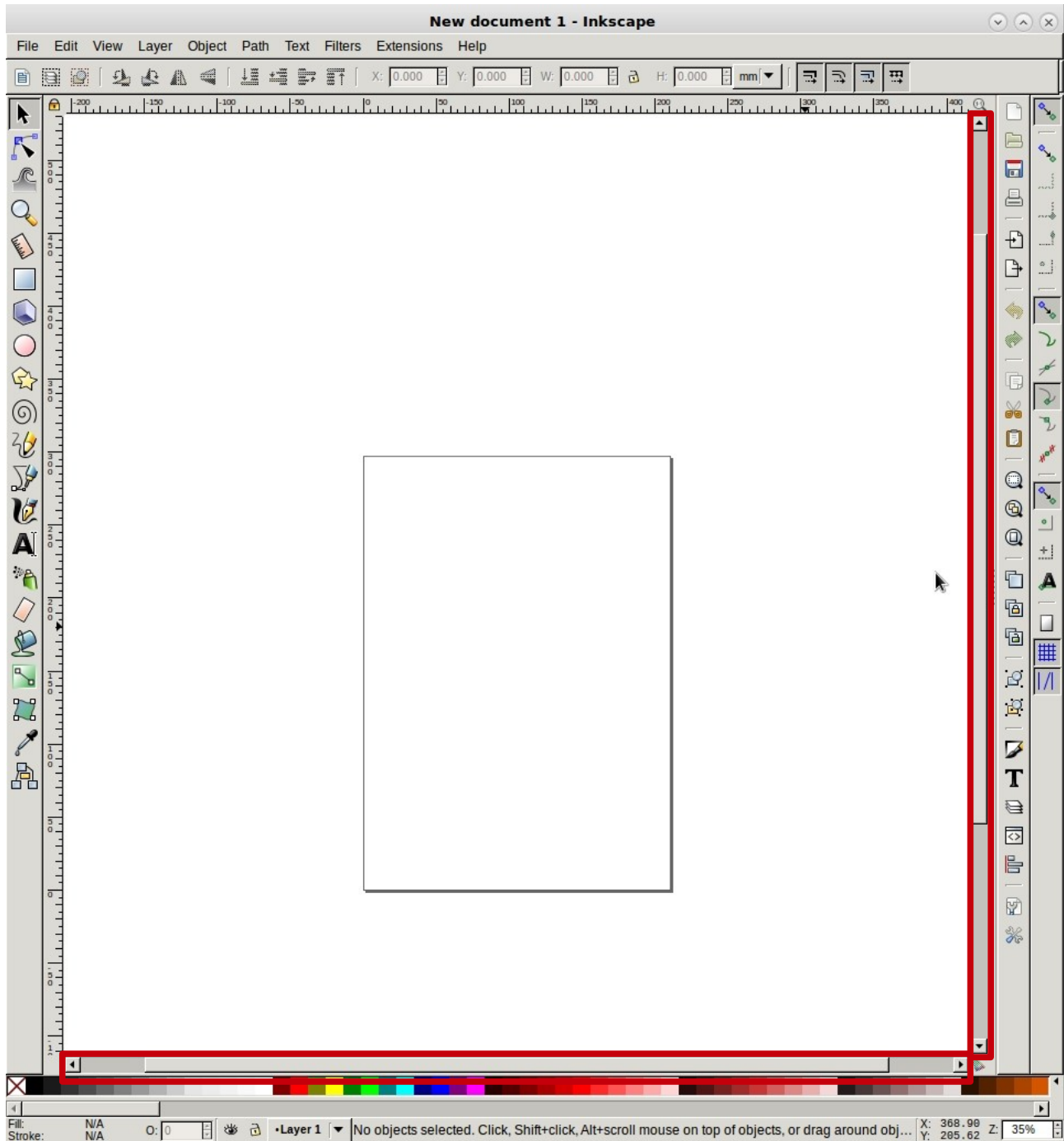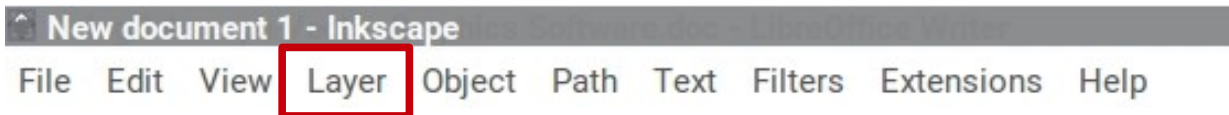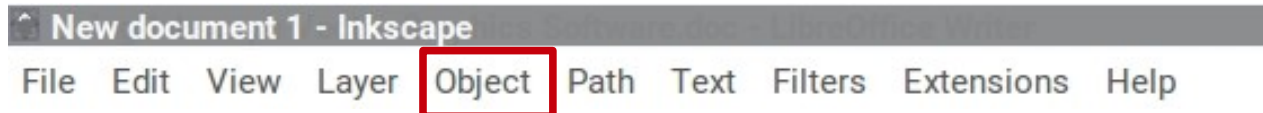
The only item we need to concentrate on is 'move selection to layer' - this is sometimes needed when importing images and adding other detail that we don't want to lose.

Add Layer...	Shift+Ctrl+N
Rename Layer...	
Show/hide Current Layer	
Lock/Unlock Current Layer	
Switch to Layer Above	Ctrl+Page Up
Switch to Layer Below	Ctrl+Page Down
Move Selection to Layer Above	Shift+Page Up
Move Selection to Layer Below	Shift+Page Down
Move Selection to Layer...	
Raise Layer	Shift+Ctrl+Page Up
Lower Layer	Shift+Ctrl+Page Down
Layer to Top	Shift+Ctrl+Home
Layer to Bottom	Shift+Ctrl+End
Duplicate Current Layer	
Delete Current Layer	
Layers...	Shift+Ctrl+L

We usually select the default option of moving to layer 1:

Move to Layer

Layer 1

Cancel   Move

Object:

New document 1 - Inkscape

File   Edit   View   Layer   **Object**   Path   Text   Filters   Extensions   Help
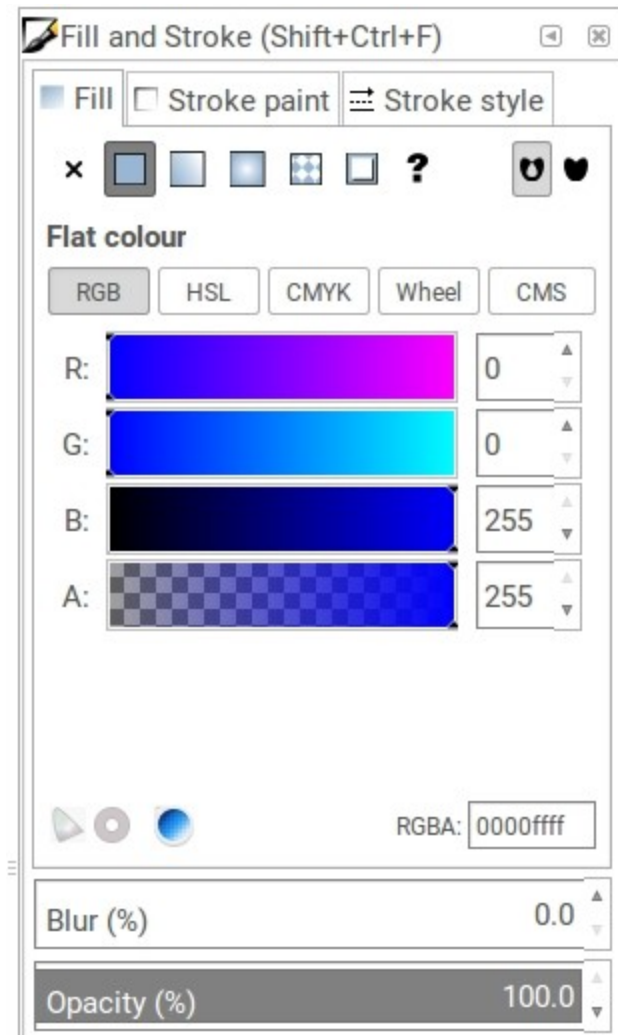
The main items we will use here are 'Fill and Stroke', 'Symbols', 'Group', 'Ungroup', 'Rotate' and 'Flip' - although we can quickly access these last two items using the buttons on the 'Tool Controls bar' that appears immediately below the 'Menu Bar'.

📝 Fill and Stroke...	Shift+Ctrl+F
🖼 Object Properties...	Shift+Ctrl+O
🛡 Symbols...	Shift+Ctrl+Y
🗂 Group	Ctrl+G
🗂 Ungroup	Shift+Ctrl+G
Clip	▶
Mask	▶
Pattern	▶
Objects to Marker	
Objects to Guides	Shift+G
📑 Raise	Page Up
📑 Lower	Page Down
📑 Raise to Top	Home
📑 Lower to Bottom	End
↻ Rotate 90° CW	
↺ Rotate 90° ACW	
↔ Flip Horizontal	H
↕ Flip Vertical	V
Unhide All	
Unlock All	
🔄 Transform...	Shift+Ctrl+M
📊 Align and Distribute...	Shift+Ctrl+A
🔲 Arrange...	

'Fill and Stroke':

**When selected this will appear to the right of the main window:**

You will notice that there are 3 tabs – Fill is the default Tab that is viewed on launching 'Fill and Stroke'. The default option is a 'solid' colour this will be our main choice with the only other option of 'pattern' chooser, indicated by the square containing diamond pattern.

When you create a shape for the first time it has a default 'fill' colour. When you alter any of the shapes attributes, these will be memorised by the program the next time you launch it so you don't have to keep removing the solid fill each time.

To make the object have no fill all we need to do is use the mouse to move the 'Alpha' Channel (Transparency setting) markers to the extreme left from the extreme right.
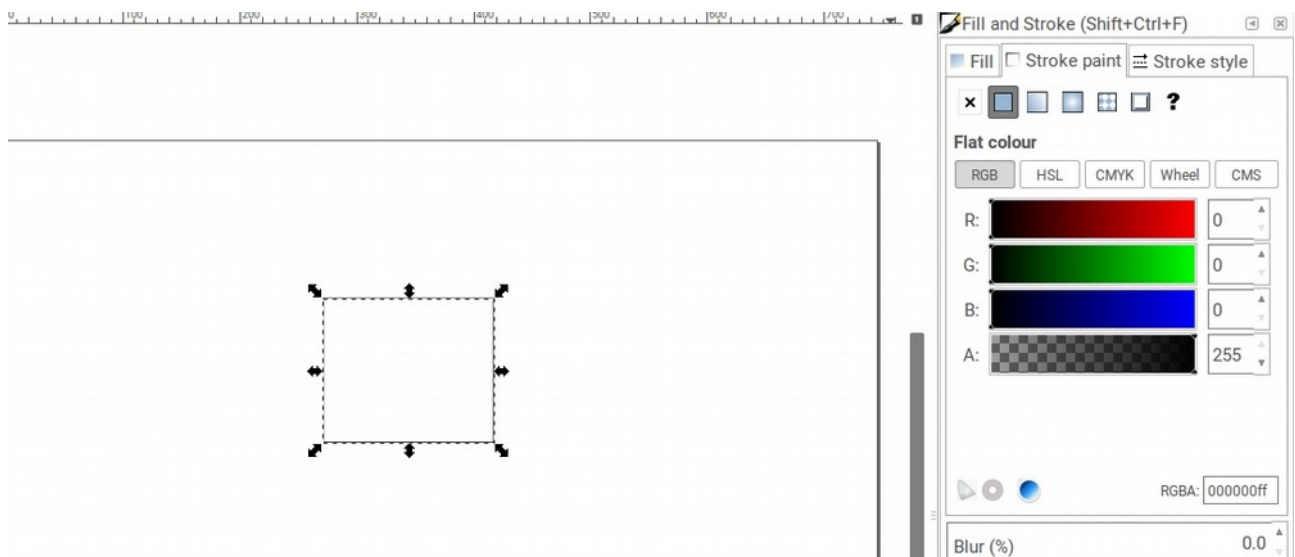
Before:
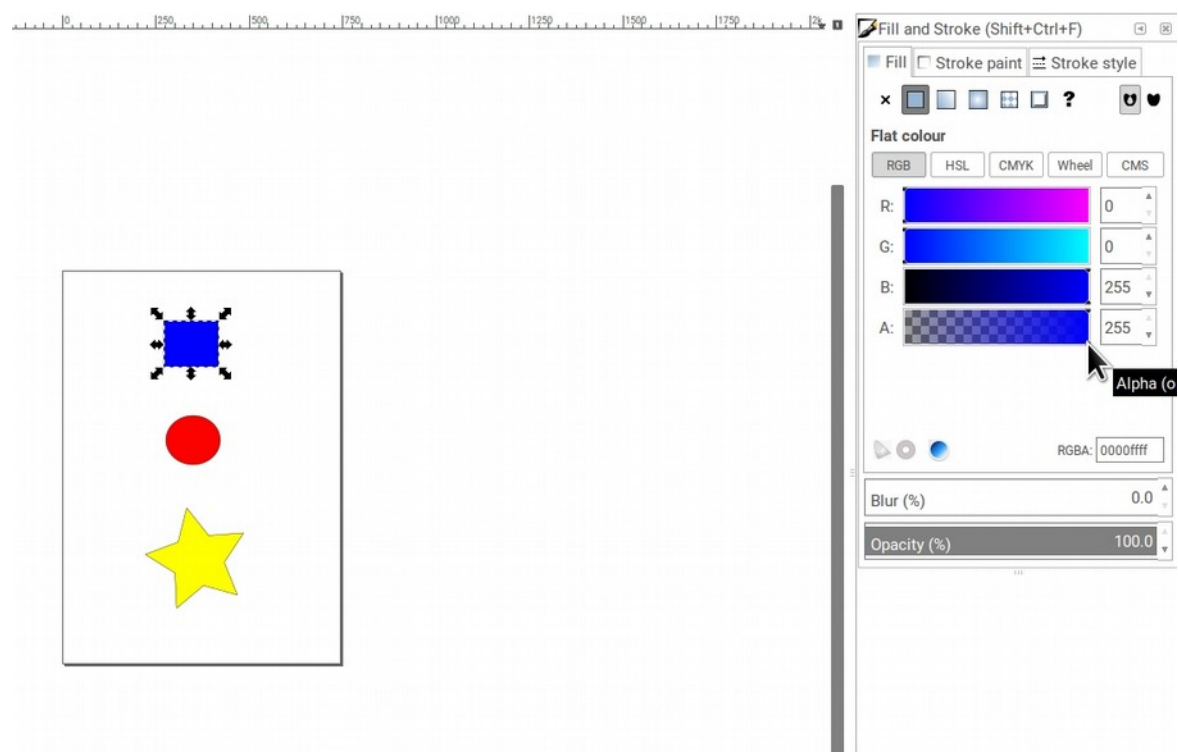
After:
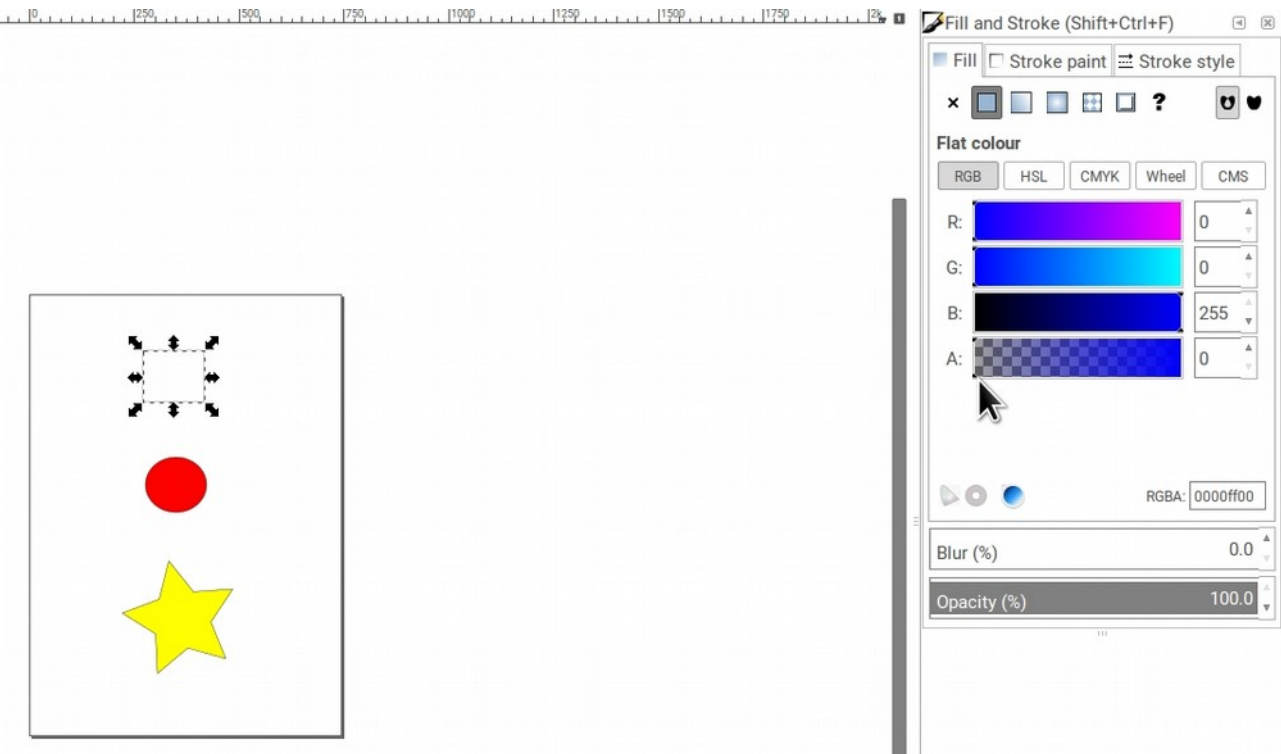
Fill and Stroke | Stroke Paint Tab:

Here we can see that stroke paint refers to the colour of the border of the shape, but it is also used when we are drawing lines, such as a line graph that needs colour differentiation as two or more colours may be needed to identify different item trends. You will notice that Stroke Paint also has the options of being solid, patterned etc but we will stick with the solid option.

As you can see, the stroke style is quite thin – we can make it thicker by choosing 'Stroke style' tab and change settings on that Tab. By default, the unit measurement is set to 'px' (pixels) – we need to change this to 'pt' (point/s) for consistency with Word which usually measures line thickness in 'point/s'. When we change to 'pt' the value changes from '1.000' to '0.800'.
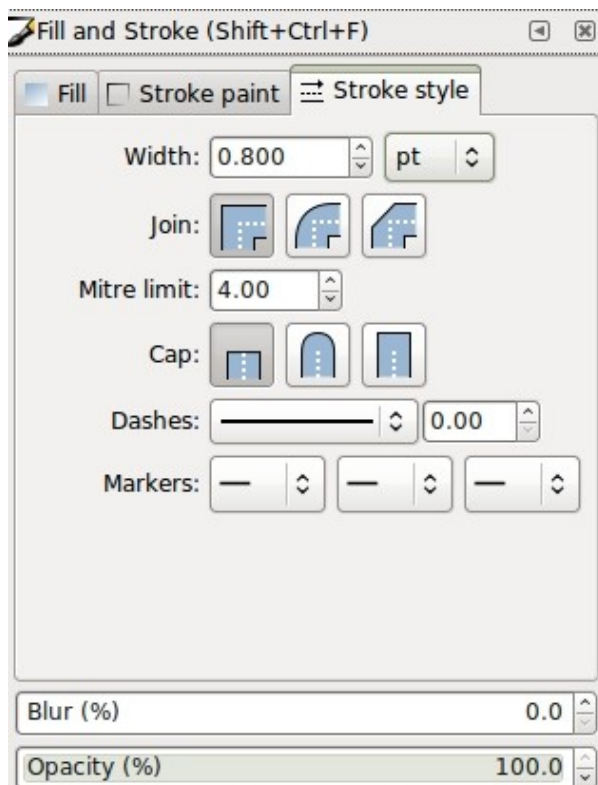
For a student with 14 pt font we would choose '2.250', 18 pt font we would thicken this to '3.000' and for 36 pt font we would choose '6.000' - to set the new values you can just highlight the field and just enter '2.25', '3' or '6' respectively.

This control box also includes choices for the shape and size of the line endings ('Cap') - for an arrow head we would change the 'Cap' to the middle option.

[Not to Scale - enlarged for example purposes only.]

[A note about arrows. If an original Graph or image has this type of arrowhead:

You need to change it to the same shape as given previously:

This applies whether preparing work for a student with low vision or a student with no vision.]

Below 'Cap:' is the 'Dashes:' setting – by default this is a solid line – there is a wide variety of dashes available when you click on the down arrow to the right of the 'Dashes:' preview pane. (Author's Note: I have never used the 'offset' option to the immediate right of this.)

'Markers:' is the section which allows you to change the end/s of lines to different terminators – sadly the type of arrowhead we need is not present so we need to manually create one in the diagram – but on the plus side you can then use saved diagrams to copy and paste elements you need in a new creation.
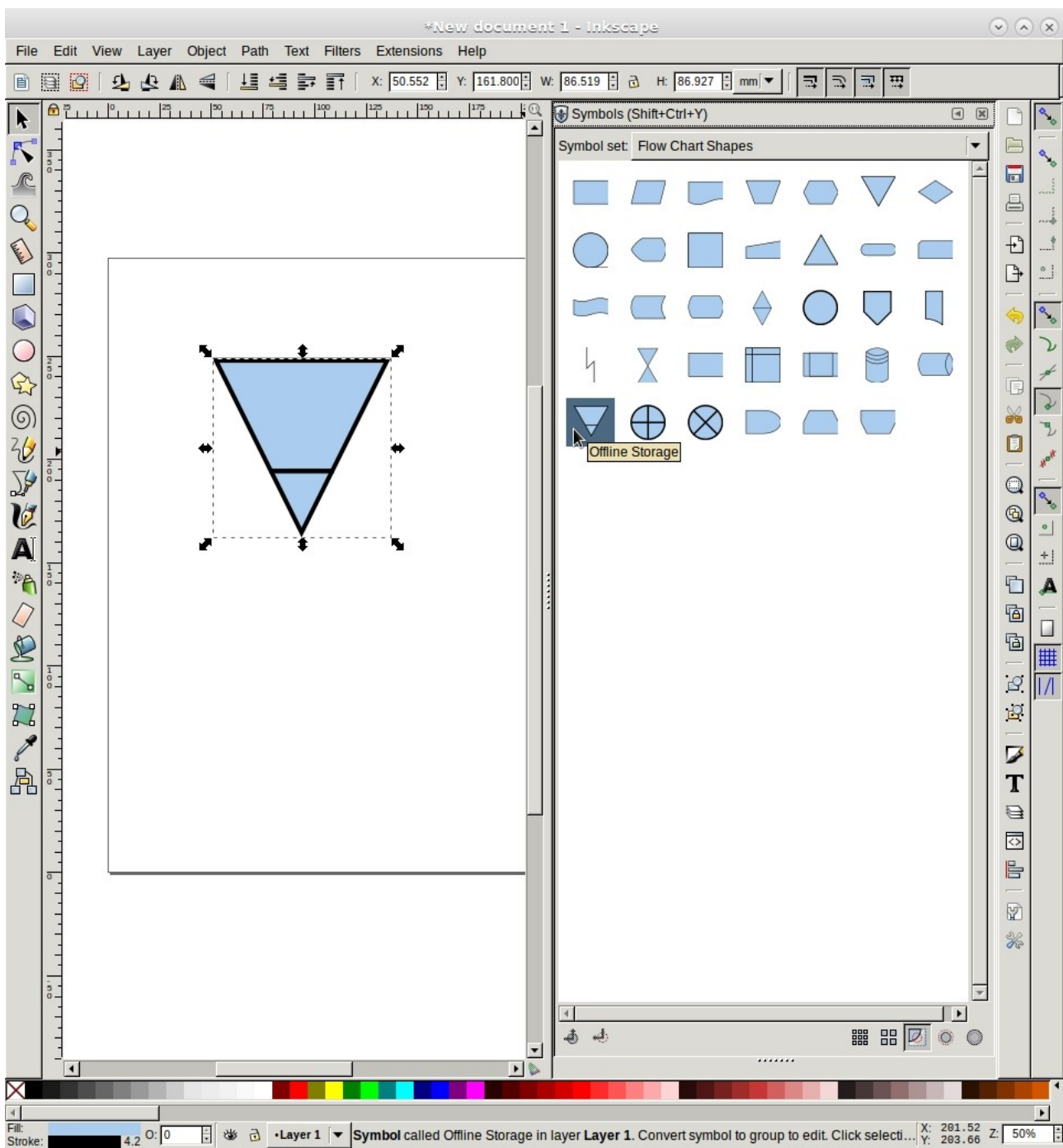
Symbols:

These can be useful for quick image creation of signs: AIGA Symbol Signs, word balloons, Flow Chart Shapes, Logic Symbols, United States National Park Service Map Symbols – some of the sign-age in this collection could be used for other purposes for our benefit. To add the symbol of your choice, left-click to select the image then holding the left mouse button down drag it to the canvas – once there you can drag the image handles to make the image as big or as a small as you want.
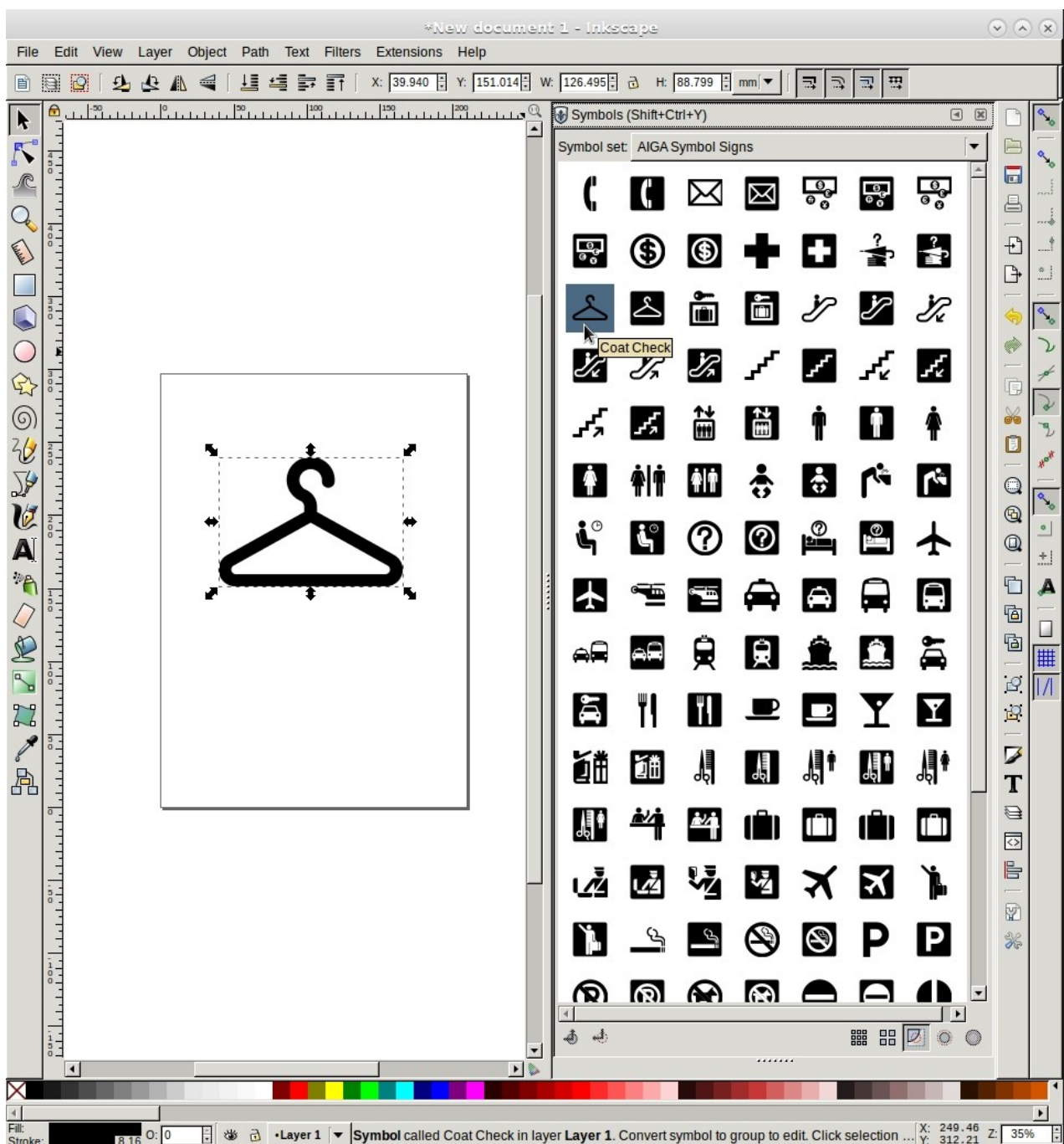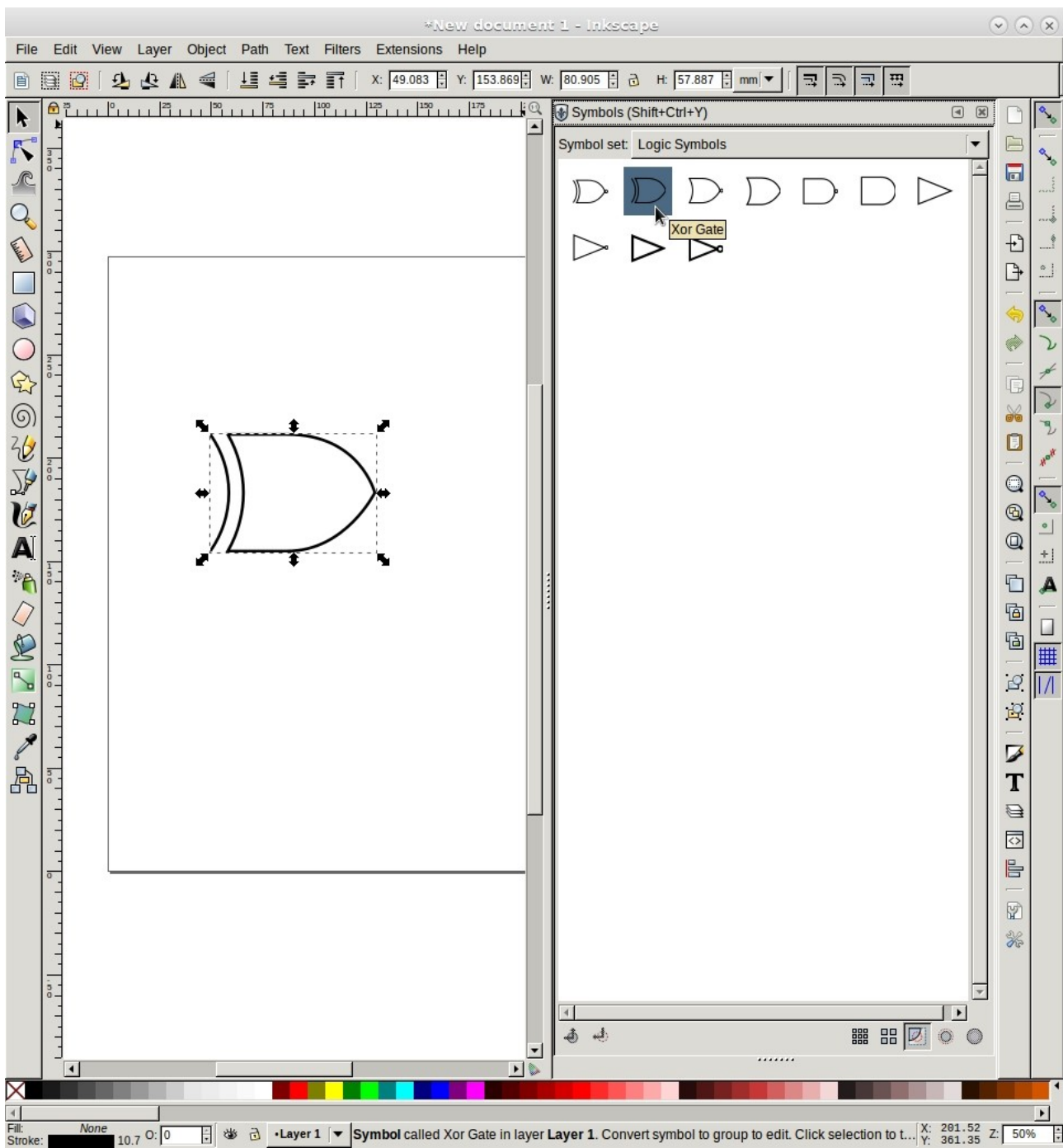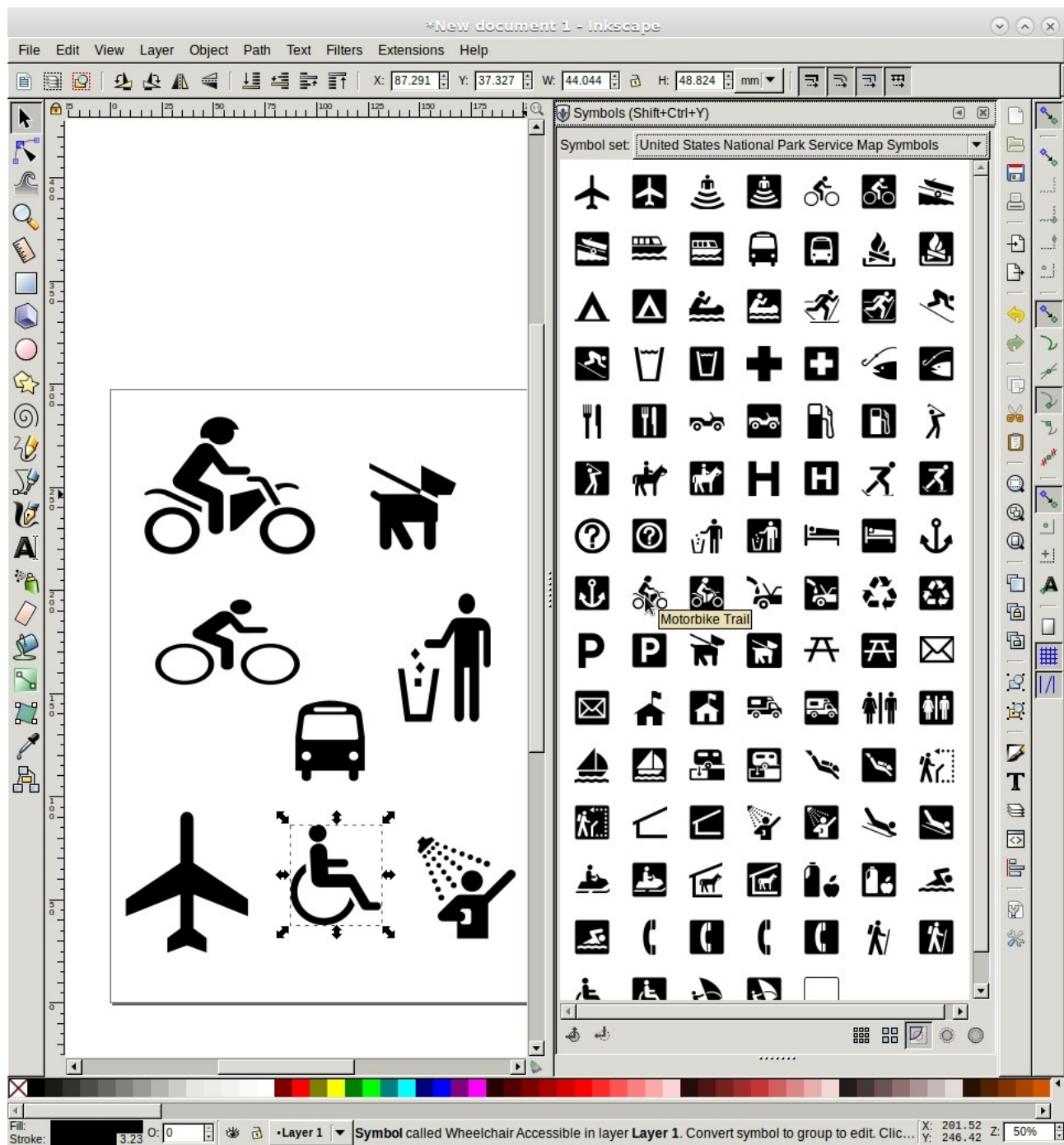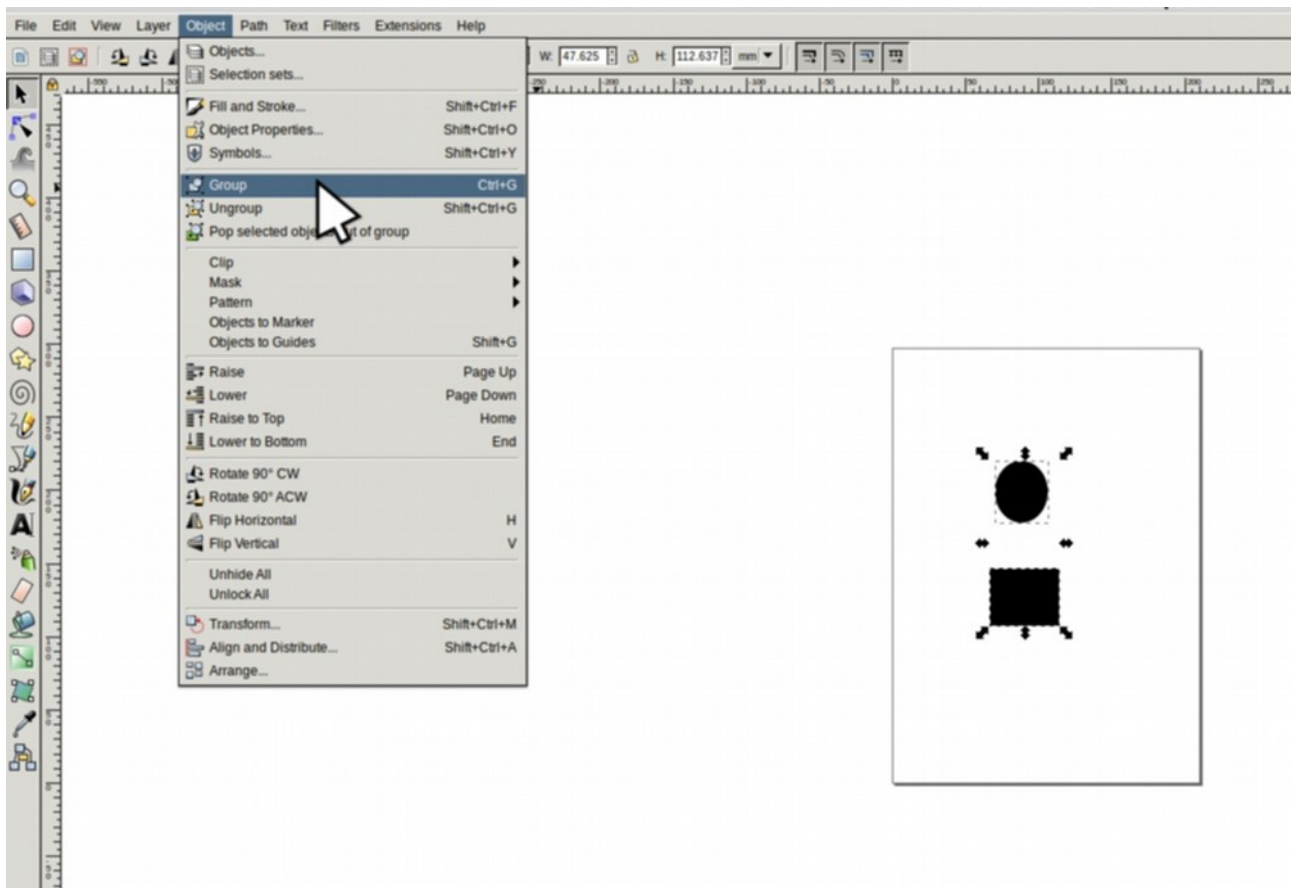
Word Balloons
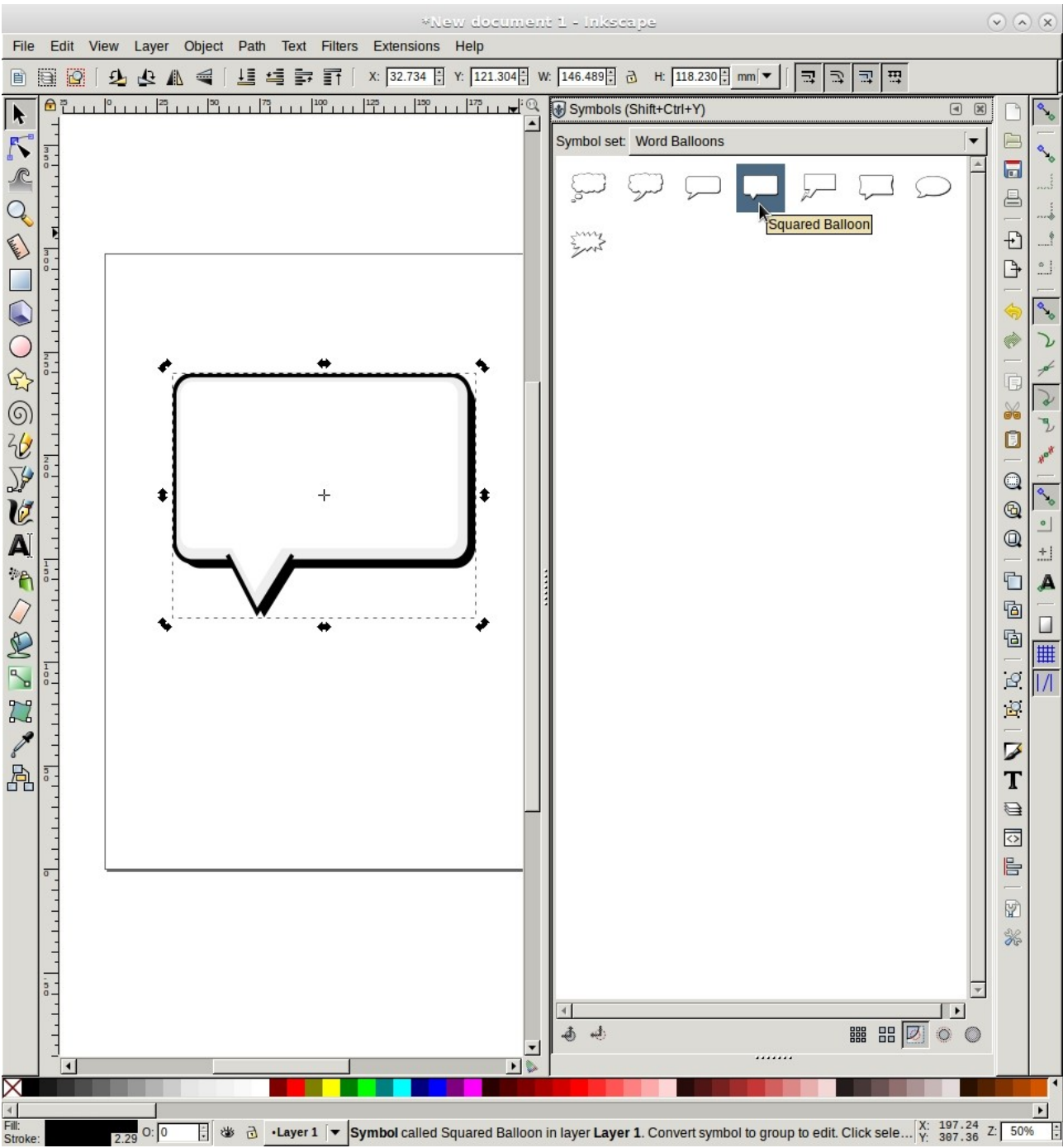
Flow Chart Shapes:

Logic Symbols:

United States National Park Service Map Symbols:

Group:

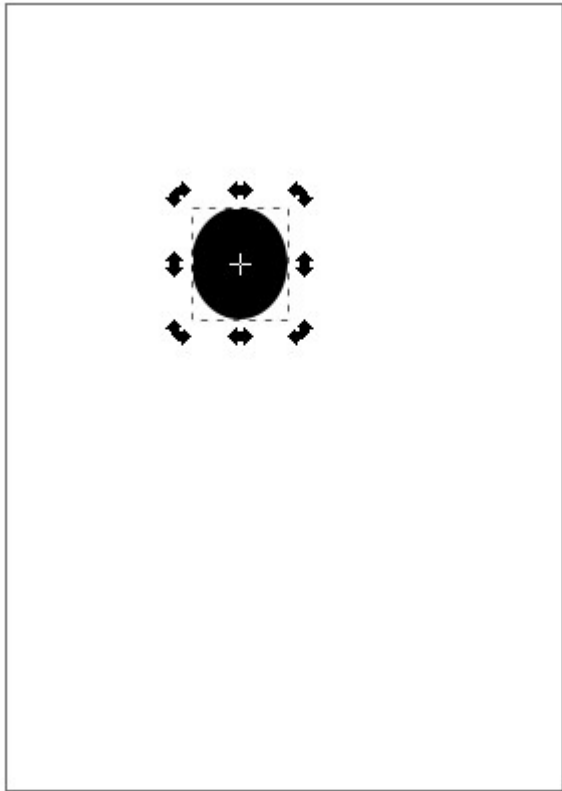**Using the 'select' tool (Arrowhead at the top of the left toolbar) 'draw' a rectangle that encompasses all the objects (as shown in the example above) and you should see the diagram handles surround all the objects – then select 'Group' from the Object menu. Once 'Grouped' and you want to separrate the items, select the new item by left click and then from the Object Menu select 'Ungroup'.**
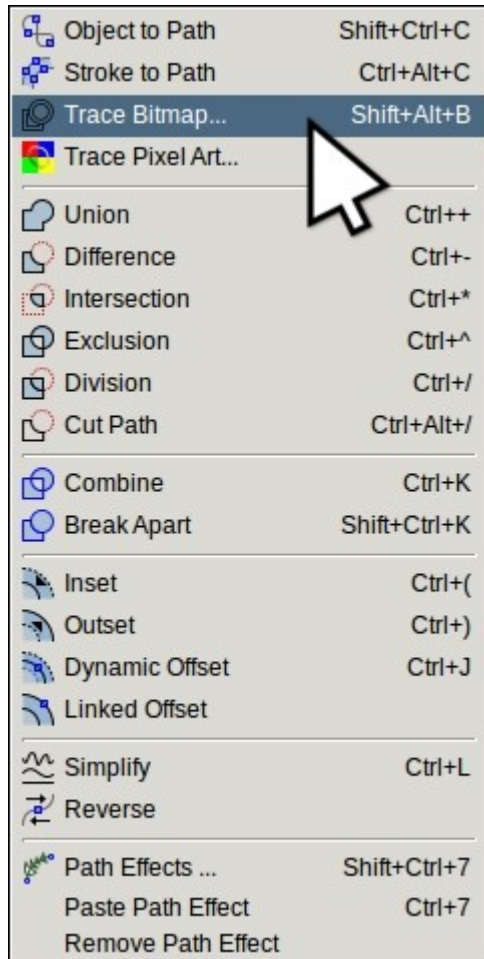
Now 'Rotate' and 'Flip' are pretty much straightforward, but there may be times when we want to only make a 'partial rotation'. We can do this by firstly selecting an object by left clicking, but then click once more to see the 'rotation' handles appear around the object instead of the 'resize' handles:

Path:

New document 1 - Inkscape

File   Edit   View   Layer   Object   **Path**   Text   Filters   Extensions   Help

The only item we will be mainly using for our purposes is 'Trace Bitmap ...'

Object to Path	Shift+Ctrl+C
Stroke to Path	Ctrl+Alt+C
Trace Bitmap...	Shift+Alt+B
Trace Pixel Art...	
Union	Ctrl++
Difference	Ctrl+-
Intersection	Ctrl+*
Exclusion	Ctrl+^
Division	Ctrl+/
Cut Path	Ctrl+Alt+/
Combine	Ctrl+K
Break Apart	Shift+Ctrl+K
Inset	Ctrl+(
Outset	Ctrl+)
Dynamic Offset	Ctrl+J
Linked Offset	
Simplify	Ctrl+L
Reverse	
Path Effects ...	Shift+Ctrl+7
Paste Path Effect	Ctrl+7
Remove Path Effect	

When the new interface opens we need to select 'Edge Detection'. What this does is look for any hint of lines/borders to the object and overlays its own 'edging'. 'Live Preview is unchecked by default so you need to check this to see how it will impact on the image you are working with.
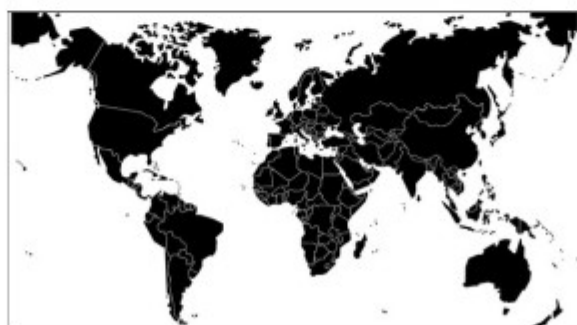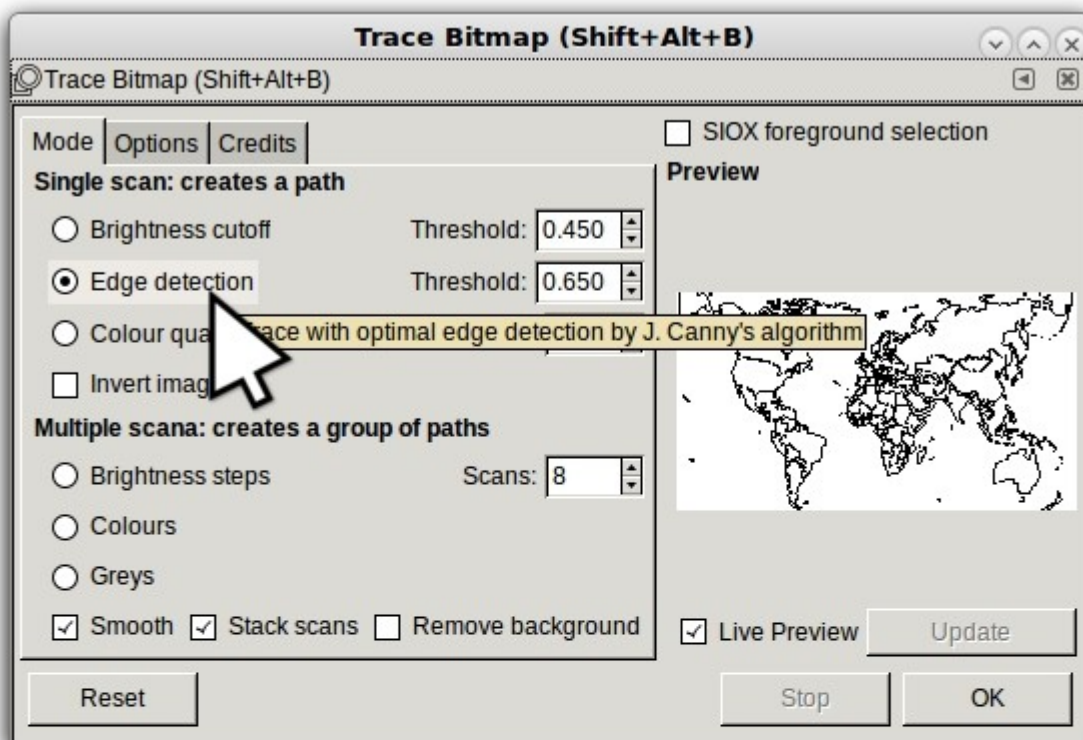
**When we select OK, the changes are applied:**
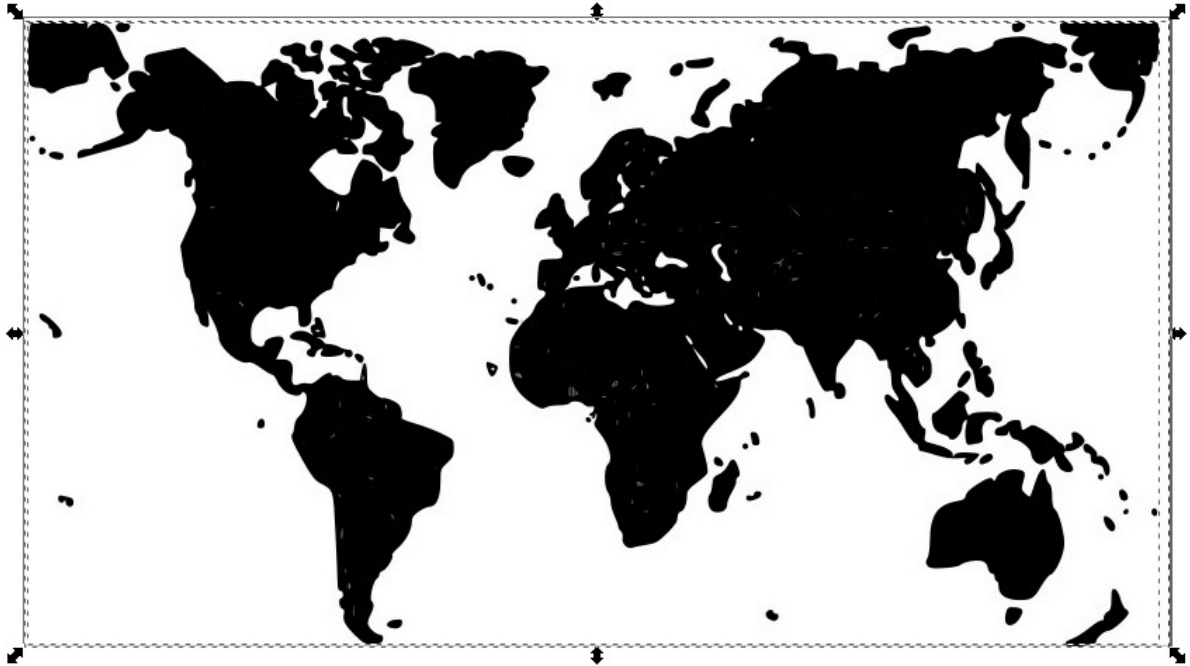
As you can see, this is not what we want – it has filled in the pale lines that were already present – but now comes the 'magic'! Left click to select the original image and drag it downwards to reveal what we actually wanted:

Text:

New document 1 - Inkscape

File   Edit   View   Layer   Object   Path   **Text**   Filters   Extensions   Help

Text and Font will be the only item we need to concentrate on. By default, the Font is set to 'Sans-serif'. We will need to change this to the font that matches the pupil's profile. For the purposes of this guide the use of the 'brl80' font will be used for Braille Labelling of diagrams.
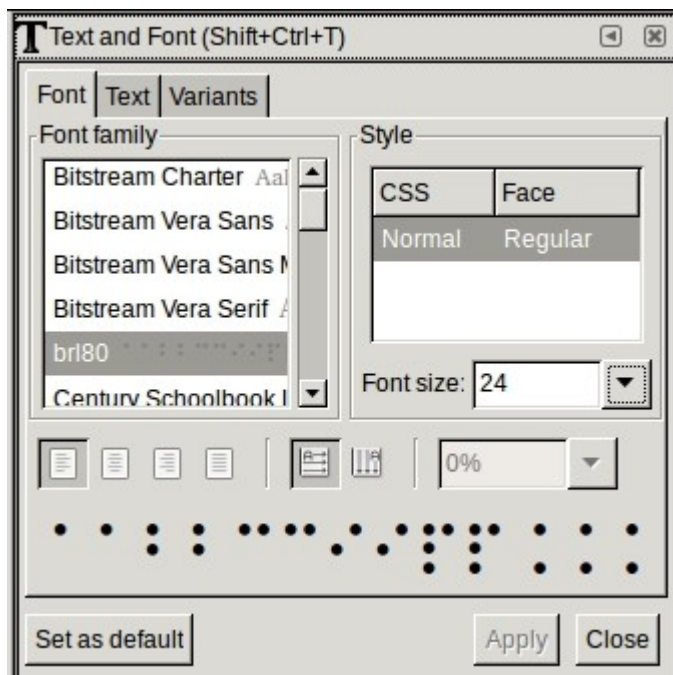

The Sans-serif font is set to 30 – we need to reduce this to 24, then click on 'Set as default'. This means that whenever we launch inkscape 'Text and Fonts' brl80 will be the one shown. After we have set the font we can close the 'Text and Font' window.

To apply some text, click on the Text Tool, indicated by the letter 'A' which has an 'i-beam' immediately to the right of it:

After you have selected this tool, when you move the cursor onto the canvas it changes into a cross-hair with the capital A shown in the bottom right quadrant of the cross-hair – unfortunately I could not replicate this in a screenshot as the system's cursor becomes shown instead! You will get a flashing vertical line indicating where the first letter will appear.
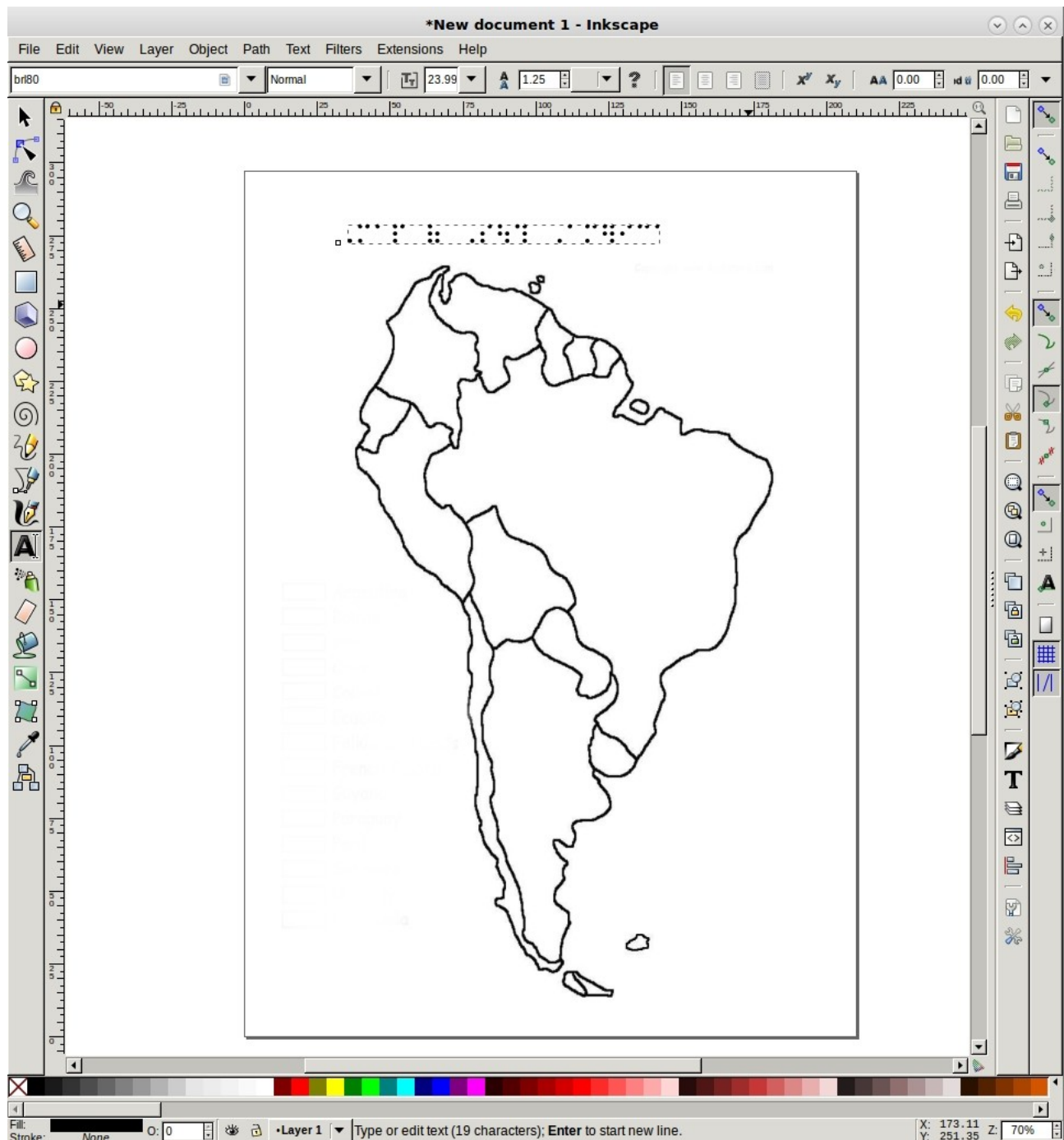
Once you have completed your text input, go to 'Select' tool (arrowhead on top of toolbar left of the screen) and you get the resize handles showing – you don't resize but you can now use your cursor keys (arrow keys) on the keyboard to manoeuvre the text where you want it to be. Left click again to get the rotation handles if you want to have vertical text:

We don't need to concern ourselves with 'Filters' or 'Extensions' in what we are trying to achieve. Help is always useful but might not have the answer you are looking for as it is somewhat limited and is an online web page.

Next up the Left Tool Bar and the Items we are most likely to use from it (the ones bordered in red):

The selection tool for selecting objects.

The 'node' tool for stretching lines and creating curves

The rectangle tool

The circle tool

Geometric shapes tool

The Bezier curve creator – also used for straight lines.

The Text Tool – to label diagrams

Fill Tool

On the top row of the window:

 Rotation and 'mirror' tools.

On the right vertical tool bar, near the bottom:

 Edit objects' colours, gradients, arrowheads + other fill and stroke properties. (Use pt - = points and consistent with Word.

View and select font family, font size and other text properties.

Inkscape can be used to modify images you have been provided by mainstream by scanning documents into the computer (MFD's around school cannot capture as well as a scanner when it comes to images for Vision Support students for modification purposes).

If you cannot scan an image in, find a similar item in T:\VI\ or look online for a similar object/image.

When resizing a line that has been drawn, don't use the resize handles by 'selecting' - use the node tool to extend a line – using resize makes the line thicker than we need it.

Final comments: One of the great things about Inkscape is that if you want to make an image have thicker lines that you have already created, all you have to do is 'Select All' then open up the Edit Objects tool, change the Stroke properties to a higher number and all the lines are made instantly thicker – no need to start the project from scratch. Just be sure that you save any previous work you are going to modify with a new file name so the original does not get overwritten.

If you haven't upgraded from 0.91 to 0.92 I would do so at your earliest convenience and have read differing experiences of people having used 32-bit in preference of 64-bit on a 64-bit powered machine.

For a video presentation please visit:

https://vimeo.com/209130467/eb5fd22724

Inkscape resources:

https://inkscape.org/en/~henkjan_nl/★classical-hatch-patterns-for-mechanical-drawings

https://inkscape.org/en/~HongKong-3/★musical-symbols

https://inkscape.org/en/gallery/=svg-tool/

https://inkscape.org/en/~sincoon/★knob-scale-generator

https://inkscape.org/en/~cds4/★multi-grids

https://inkscape.org/en/~macbuse/★apollonian-master

https://inkscape.org/en/~wwderw/★inkstitch-embroidery-extension

https://inkscape.org/en/~fsmMLK/★cartesianplotfunction2d

https://inkscape.org/en/~fsmMLK/★cartesianstemplot

https://inkscape.org/en/~fsmMLK/★cartesianaxes2d

https://inkscape.org/en/~whidev/★ids-to-text-elements

https://inkscape.org/en/~fsmMLK/★cartesianplotdata2d

https://inkscape.org/en/~joshbarts/★fibonacci-spiral